

State of California
AIR RESOURCES BOARD

Resolution 02-24

June 20, 2002

Agenda Item No.: 02-5-1

WHEREAS, sections 39600 and 39601 of the Health and Safety Code authorize the Air Resources Board (the "ARB" or "Board") to adopt standards, rules and regulations and to do such acts as may be necessary for the proper execution of the powers and duties granted to and imposed upon the Board by law;

WHEREAS, section 39606(a)(2) of the Health and Safety Code requires the Board to adopt standards for ambient air quality "in consideration of public health, safety, and welfare, including, but not limited to, health, illness, irritation to the senses, aesthetic value, interference with visibility, and effects on the economy"; and requires health-based standards to be based on the recommendation of the Office of Environmental Health Hazard Assessment (OEHHA);

WHEREAS, section 39606(d)(2) of the Health and Safety Code requires the Board to revise the highest priority ambient air quality standard determined to be inadequate to protect infants and children with an adequate margin of safety, no later than December 31, 2002, and to establish the standards "at levels that adequately protect the health of the public, including infants and children, with an adequate margin of safety";

WHEREAS, section 39606(b) of the Health and Safety Code requires OEHHA to assess four specific factors relevant to infants and children in preparing its recommendation to the Board: exposure patterns, special susceptibility, effects of exposure, and interaction of multiple air pollutants;

WHEREAS, section 39014 of the Health and Safety Code defines "ambient air quality standards" (AAQS) to mean "specified concentrations and durations of air pollutants which reflect the relationship between the intensity and composition of air pollution to undesirable effects established by the state board";

WHEREAS, section 70101 of title 17, California Code of Regulations, states that "the objective of ambient air quality standards is to provide a basis for preventing or abating the effects of air pollution, including effects on health, esthetics and economy"; that "pollution levels below those shown in the standards should not ordinarily produce the associated effects"; that "ambient air quality standards shall be reviewed and subject to modification whenever substantial pertinent new information becomes available and at least once every five years"; and that "to the

extent feasible, review of a standard shall be coordinated with the review of any corresponding federal standard by the Environmental Protection Agency”;

WHEREAS, based on section 39014 of the Health and Safety Code and on sections 70100 and 70200 of title 17, California Code of Regulations, California ambient air quality standards have four elements: (1) a definition of the air pollutant, (2) an averaging time, (3) a pollutant concentration, and (4) a monitoring method to determine levels of the pollutant in the ambient air relative to attainment of the standard;

WHEREAS, section 39606(d)(1) of the Health and Safety Code required the Board in consultation with OEHHA, by December 31, 2000, “to review all existing health-based ambient air quality standards to determine whether, based on public health, scientific literature, and exposure pattern data, these standards adequately protect the health of the public, including infants and children, with an adequate margin of safety”;

WHEREAS, on December 7, 2000, the Board approved a joint ARB/OEHHA staff report that contained preliminary reviews of all of the health-based California ambient air quality standards, and found that health effects may occur in infants, children, and other potentially susceptible subgroups exposed to several pollutants at or near levels corresponding to current California ambient air quality standards;

WHEREAS, on December 7, 2000, the Board further found that the standard with the highest priority for revision is particulate matter (including sulfates) less than ten micrometers in aerodynamic diameter (PM₁₀), and resolved to review the California ambient air quality standard for PM including sulfates prior to December 31, 2002;

WHEREAS, on November 30, 2001, staff released for public review a draft report titled “Review of the California Ambient Air Quality Standards for Particulate Matter and Sulfates, Report to the Air Quality Advisory Committee”, authored by ARB and OEHHA staff;

WHEREAS, in cooperation with OEHHA, staff prepared amendments to the PM₁₀ standards and, in accordance with section 57004 of the Health and Safety Code, the report and proposed amendments were peer reviewed by the Air Quality Advisory Committee (AQAC) comprised of scientific experts on particulate matter and appointed by the Office of the President of the University of California, and were discussed at public meetings on January 23, January 24, and April 3, 2002;

WHEREAS, the AQAC found that the OEHHA and the ARB staff recommendations for amending the particulate matter standards are based upon sound scientific knowledge, methods, and practices, and are supported by the scientific literature;

WHEREAS, during December 2001, public workshops to receive community input on staff’s proposal to amend the standards for particulate matter were held in six California cities;

WHEREAS, upon the recommendation of the AQAC, staff developed a proposal to establish a 24-hour standard for particulate matter of aerodynamic diameter 2.5 micrometers or less (PM_{2.5}), and released a subsequent ARB/OEHHA staff report titled "Draft Proposal to Establish a 24-hour Standard for PM_{2.5}, Report to the Air Quality Advisory Committee," which the AQAC subsequently endorsed;

WHEREAS, on May 3, 2002 the ARB released its staff report titled "Initial Statement of Reasons for Proposed Rulemaking; Public Hearing to Consider Amendments to the Ambient Air Quality Standards for Particulate Matter and Sulfates," which presents the findings and recommendations of the joint ARB/OEHHA staff review of the health and scientific literature on PM and sulfates, as well as exposure pattern data for PM and sulfates in California, including background, and includes a health effects review and recommendations from OEHHA;

WHEREAS, the staff report incorporates a proposal to establish a 24-hour PM_{2.5} standard, as well as written and oral comments received from the AQAC and the public, along with staff responses;

WHEREAS, public workshops to receive community input on the staff report and recommendations were held in June 2002 in Sacramento and Los Angeles;

WHEREAS, in May 2002, staff discovered that the operation of the S-Plus statistical software package by the researchers may have introduced a bias into the results of key research studies that provided significant underpinning to the justification for the proposed 24-hour PM_{2.5} standard and for retention of the 24-hour PM₁₀ standard;

WHEREAS, a public hearing and other administrative proceedings have been held in accordance with the provisions of chapter 3.5 (commencing with section 11340), part 1, division 3, title 2 of the Government Code;

WHEREAS, the Board has received and reviewed a substantial body of evidence and testimony, in both written and oral form, from the AQAC, OEHHA, ARB staff, and members of the public prior to and at a duly-noticed public hearing held on June 20, 2002 relating to the adverse health effects of PM₁₀ and PM_{2.5}, and finds as follows:

1. The potential health impacts from exposure to particulate matter (PM) air pollution are significant and include premature mortality, increased hospital admissions for cardiopulmonary causes, and exacerbation of bronchitis, asthma, and respiratory symptoms, as have been reported primarily in infants, children, the elderly, and those with pre-existing cardiopulmonary disease.
2. The scientific review suggests the need for separate standards for PM₁₀ and PM_{2.5}, as well as revising the annual standard for PM₁₀, to make them more health protective.
3. Lowering the annual-average standard for PM₁₀ from 30 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) to 20 $\mu\text{g}/\text{m}^3$, not to be exceeded, and revising the averaging method from an annual geometric mean to an annual arithmetic mean, is necessary based

on the results of numerous epidemiological studies that have found associations between long-term PM₁₀ exposure and adverse health effects, such as mortality and morbidity from cardiopulmonary causes.

4. The establishment of a new annual-average standard for PM_{2.5} at 12 µg/m³, not to be exceeded, as an annual arithmetic mean, is necessary to protect public health, based on a growing body of epidemiological and toxicological studies showing significant toxicity related to exposure to fine particles.

5. The scientific review suggests that the standard for sulfates should be retained.

6. The scientific studies currently available do not suggest that the existing 24-hour standard for PM₁₀ needs to be revised.

7. The decision not to revise the current 24-hour standard for PM₁₀ should be reassessed once the reanalysis of recent epidemiological studies showing associations between ambient PM₁₀ levels and mortality and morbidity resulting from cardiopulmonary causes is completed to correct for any errors that may have occurred because of the use of statistical software.

8. The establishment of a new 24-hour standard for PM_{2.5} as proposed in 17 CCR section 70200 should be deferred, based on the need to review epidemiological studies showing associations between ambient PM_{2.5} levels and mortality and morbidity resulting from cardiopulmonary causes, in light of the difficulties with the use of statistical software in several key studies.

9. Updated monitoring methods and samplers are needed to measure ambient PM₁₀, PM_{2.5}, and sulfate concentrations and establish compliance with the proposed and retained standards for PM and sulfates, and these methods should include Federal Reference Methods for PM₁₀ and PM_{2.5}; continuous PM samplers that have been found suitable for determining compliance with the state PM₁₀ and PM_{2.5} AAQS; and ARB method MLD 007 for sulfates.

10. The monitoring methods proposed should eliminate the ambiguity that currently exists between the acceptable use of samplers for state and federal programs, and responds to the need for continuous samplers to meet a variety of needs.

11. The health benefits from attaining the proposed annual-average standards for PM_{2.5} and PM₁₀ are substantial, including an estimated reduction of 6,500 cases of premature mortality per year, and reduced hospitalizations from chronic obstructive pulmonary disease, cardiovascular disease, respiratory diseases, pneumonia, bronchitis, and asthma.

12. The proposed standards provide an adequate margin of safety that allows for and compensates for scientific uncertainty, as well as the lack of precise predictions regarding the health impacts of air pollutants on a multiplicity of potentially susceptible subpopulations.

13. The proposed standards will in and of themselves have no environmental or economic impacts because they simply establish health-protective levels of the subject pollutants and do not specify any control measures.

14. The review of the proposed standards has been coordinated to the extent feasible with the review of the corresponding federal standards, which has led to proposed methods, samplers, and instruments for measuring particulate matter in California that include the adoption of federal reference methods.

15. Due to California's unique circumstances and the seriousness of the health impacts of PM, it is necessary and appropriate to proceed with the adoption of State PM standards before the federal EPA completes its amendment of the NAAQS for PM.

16. Because of the potential negative impacts on both air quality and the competitiveness of certain California businesses if the NAAQS for PM are significantly less stringent than California's standards, the ARB should cooperate with other interested parties through the Clean Air Science Advisory Committee (CASAC) and U.S. EPA process, to achieve a health-protective outcome in the federal standard-setting process.

NOW, THEREFORE, BE IT RESOLVED that the Board approves sections 70100, 70100.1 and 70200, title 17, California Code of Regulations, as set forth in Attachment A hereto, with the modifications set forth in Attachment B.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to adopt section 70100.1 and amend sections 70100 and 70200, title 17, California Code of Regulations, after making the modified regulatory language and additional supporting documents and information available for public comment for a period of 15 days; provided that the Executive Officer shall consider such written comments regarding the modification and additional supporting documents and information as may be submitted during this period, shall make modifications as may be appropriate in light of the comments received, and shall present the regulations to the Board for further consideration if he determines that this is warranted.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to review the key corrected research studies regarding the short-term PM standards when they become available, to report the results of the review to the Board, and to recommend appropriate revisions to the standards.

BE IT FURTHER RESOLVED that the Board reiterates a goal of accelerated reductions in PM₁₀ and PM_{2.5} concentrations over time in order to attain the health-based ambient standards for PM₁₀ and PM_{2.5}, to be accomplished in consultation with local air quality management districts and air pollution control districts, other stakeholders, and the public.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to actively participate in the EPA's review of the NAAQS for PM, including the timely submittal of comments to the CASAC and active staff participation where appropriate, with staff assistance of OEHHA in this effort.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to report to the Board in a publicly noticed meeting the results of the CASAC proceedings and the promulgation of any new PM standards by the EPA, with discussion of any differences with the State PM standards.

I hereby certify that the above is a true and correct copy of Resolution 02-24, as adopted by the Air Resources Board.

Stacey Dorais, Clerk of the Board

Resolution 02-24

June 20, 2002

Identification of Attachments to the Resolution

Attachment A: Amendments to sections 70100 and 70200 and new section 70100.1, title 17, California Code of Regulations as noticed on May 3, 2002

Attachment B: Staff's Suggested Modifications to section 70200, title 17, California Code of Regulations Presented at the June 20, 2002 Hearing